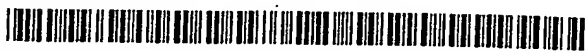


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(54) Title: AN IMPROVED BRIET ASSAY

(57) **Abstract:** An improved BRIET assay, wherein the BRIET signal is enhanced and/or prolonged. The improved BRIET assay comprises the steps of i) adding a substrate to a cell comprising GPCR-Rluc fusion protein and a β -arrestin-GFP fusion protein, wherein the β -arrestin is mutated, ii) adding a ligand to obtain, if possible, a GPCR-Rluc/ β -arrestin-GFP complex, and iii) measuring a BRIET signal to obtain a BRIET ratio, wherein the improvement leads to an increased BRIET ratio compared with the ratios obtained by use of the same process employing a β -arrestin-GFP fusion protein wherein the β -arrestin is the wild type β -arrestin, or employing a β -arrestin-GFP fusion protein, wherein the β -arrestin is a β -arrestin specifically mutated so that it acts on the receptor independent of the receptors phosphorylation state. The invention further relates to a stable substrate solution for use in an improved BRIET assay.

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